

REMARKS

This application has been carefully reviewed in light of the Office Action dated October 31, 2007. Claims 1-9 remain in this application. Claim 1 is the independent Claim. Claim 1 is amended. New Claim 9 is added. It is believed that no new matter is involved in the arguments presented herein. Reconsideration and entrance of the amendment in the application are respectfully requested.

Art-Based Rejections

Claims 1-4, 7 were rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 6,199,126 B1 (Auerbach). Claims 5 and 6 were rejected under 35 U.S.C. § 103(a) over Auerbach in view of U.S. Patent No. 6,691,305 (Henkel). Applicant respectfully traverses the rejections and submits that the claims herein are patentable in light of the arguments below.

The Auerbach Reference

Auerbach is directed to an apparatus and method for transparent on-the-fly decompression of the program instruction stream of a processor. According to Auerbach, a decompression device is connected between a processor and a memory storing compressed information. The decompression device receives a request from the processor for information, retrieves compressed information from the memory, decompresses the retrieved compressed information to form uncompressed information, and transmits the uncompressed information to the processor. The compressed information may include both program instructions and data. When the decompression device receives a request for information, which includes an unmodified address, from the processor, it generates an index offset from the received unmodified address. An indexed address corresponding to the generated

index offset is retrieved from an index table. Compressed information corresponding to the selected indexed address is retrieved from the memory and transmitted to the processor (*Auerbach Abstract*).

The Henkel Reference

Henkel is directed to a method and apparatus for compressing and decompressing object code instructions that are included in a software program that executes on a computer system. (*See Henkel: Col. 1, lines 16-20*). According to Henkel, the method includes extracting compressible instruction and data portions from executable code, creating a mathematical model of the extracted code portions, class the individual instructions in the extracted portions based upon their operation codes and compressing the instructions. (*Henkel Abstract*).

The Claims are Patentable Over the Cited References

The present application is generally directed to micro controller that processes compressed codes stored in a memory.

As defined by the amended independent Claim 1, a micro controller, including a CPU, performs processing in accordance with a program. The micro controller further includes a memory, storing: grouped compressed codes resulting from the conversion of original codes into variable length codes; an address conversion information specifying the head address of each group of grouped compressed codes of variable lengths; and compressed code type informations in a block corresponding to each group, each specifying the code length of each of the group compressed codes of variable lengths contained in each group. A compressed code processing part specifies, from a code address output by the CPU, an address conversion information and compressed code type information to be referred. The specified address conversion information and the compressed code type

informations are used to determine the corresponding compressed code address, and the corresponding compressed code is read.

The applied references do not disclose or suggest the features of the present invention as recited by the claims as amended. In particular, applied references do not disclose or suggest “a memory, storing: ...a compressed code type information, specifying, according to each group, the code length of each compressed code of variable lengths contained in each group” as recited in the amended independent Claim 1.

The Office Action’s position relies on the teaching of Auerbach. Regarding the feature “compressed code type information,” the Action identifies the 6-bit offset field **914**. Auerbach teaches that the 6-bit offset field **914** is added to the base address to obtain the address of the second compressed instruction; therefore, the 6-bit offset field **914** represents the length of the first compressed instruction. The 6-bit offset representing the length of the compressed code and therefore, cannot be the compressed code type as recited in claims of present invention.

In contrast, independent Claim 1 recites the memory storing compressed code type informations in a block corresponding to each group of compressed codes. Each compressed code type information is a compressed code type indicating the code length of each of the compressed codes of variable lengths contained in each group. As illustrated in FIG. 4A and 4B of Specification, the address conversion information for block 1 is stored in the address conversion information area **4B**. FIG. 6 illustrates the block includes 16 entries of compressed code type informations (a, b, c, ...p). Each compressed code type information stores the type corresponding to the length of the compressed code (format 0, format 1, format 2, and format 3). FIG. 2A-2D illustrate that format 0 represents that the length of the compressed code is 4-bit long; format 1 represents that the length is 8-bit long; format 2

represents that the length is 10-bit long; and format 3 represents that the length is 16-bit long. Accordingly, each piece of the compressed code type information represents the compressed code length. Applicant notes that under Auerbach's scheme, a 4-bit offset field is required to represent a 16-bit long compressed code (add the 4-bit offset to the base address to obtain the address of the next compressed address). In the claimed invention, only 2 bits of compressed code type information is required.

Auerbach does not disclose or suggest those features of amended independent Claim 1. The ancillary Henkel reference is not seen to remedy the deficiencies of Auerbach.

Since the applied references, alone or in combination, do not disclose or suggest the features of the present invention as recited by the amended independent Claim 1, those references cannot be said to anticipate nor render obvious the invention which is the subject matter of that claim.

Accordingly, independent Claim 1 as amended is believed to be in condition for allowance and such allowance is respectfully requested.

The remaining claims depend either directly or indirectly from amended independent Claim 1 and recite additional features of the invention which are neither disclosed nor fairly suggested by the applied references, and are also believed to be in condition for allowance. As such, reconsideration and allowance of those claims are respectfully requested.

Conclusion

Applicant believes the foregoing amendments comply with requirements of form and thus may be admitted under 37 C.F.R. § 1.116(b). Alternatively, if these amendments are deemed to touch the merits, admission is requested under

Appl. No. 10/611,315
Amdt. Dated November 12, 2007
Reply to Office Action of October 31, 2007

Attorney Docket No. 83394.0008
Customer No. 26021

37 C.F.R. § 1.116(c). In this connection, these amendments were not earlier presented because they are in response to the matters pointed out for the first time in the Final Office Action.


In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (310) 785-4721 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
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Date: November 12, 2007

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